

Notice of Allowability

Application No.

10/574,281

Examiner

Michael Maskell

Applicant(s)

UMISEDO ET AL.

Art Unit

2881

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to communications filed 03/31/2006.
2. ☒ The allowed claim(s) is/are 1-10.
3. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some* c) ☐ None of the:
- ☒ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☒ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.
THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

4. ☒ SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
5. ☒ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
- (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
- 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
- (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.
- Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
6. ☒ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

- ☒ Notice of References Cited (PTO-892)
- ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- ☒ Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date See Continuation Sheet
- ☐ Examiner's Comment Regarding Requirement for Deposit of Biological Material
- ☐ Notice of Informal Patent Application
- ☐ Interview Summary (PTO-413), Paper No./Mail Date _____
- ☒ Examiner's Amendment/Comment
- ☒ Examiner's Statement of Reasons for Allowance
- ☐ Other _____

Continuation of Attachment(s) 3. Information Disclosure Statements (PTO/SB/08), Paper No./Mail Date: 12/22/2006;03/31/2006.

DETAILED ACTION

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Arthur Garrett on 01/14/2008. The application has been amended as follows: On page 7, line 19 of the specification, replace the word "forestage" with the word "poststage." The sentence should now read "A forestage multipoints Faraday 24 illustrated in Fig. 7 corresponds to the above-described forestage multipoints Faraday and a poststage multipoints Faraday 28 corresponds to the above-described poststage multipoints Faraday."

2. The following is an examiner's statement of reasons for allowance: The prior art does not teach a current density distribution measuring step of calculating a beam current density in the y direction of the ion beam at a position of the forestage beam restricting shutter by measuring a change in the beam current of the ion beam incident on the forestage multipoints Faraday by passing an outer side of the side of the forestage beam restricting shutter while driving the forestage beam restricting shutter in the y direction by the forestage shutter driving apparatus, and the corresponding step for the poststage multipoints Faraday. Nishikawa (JP 04319242 A) teaches measuring ion beam current density with a forestage and poststage multipoints Faraday (20 and 22

in Fig. 1), but does not teach the shutter system. Instead, the measurement is carried out by moving the forestage and poststage multipoints Faradays across the beam path. Reece, et al (U.S. Patent Application Publication 2004/0195528 A1) teaches a system to measure ion beam current density profile by selectively blocking the beam in a similar way to a shutter; however, it does not satisfy the limitation that the shutter is moved in a y direction orthogonal to the x direction. Instead, the beam blocking apparatus is a rotating disk with apertures for allowing the beam to pass. The apertures move circularly, not orthogonally to the x direction. Hasegawa, et al (JP 10319196 A) teaches a shutter that moves in the y direction for blocking a beam to measure beam center position; however, the shutter in this instance is used for blocking x-rays in an optical system, not an ion beam in an ion implantation system. The fields are not analogous art, as x-rays behave very differently than ions (for one, x-rays lack mass and charge, both being very significant factors for ions beams), so there is no indication that elements from x-ray optics would be prima facie obvious to use in an ion system. Evans (U.S. Patent 6,763,316) teaches a beam current density distribution measurement method using a straight-edge shutter, but does not teach a forestage or poststage center position calculating step of calculating a center position in the y direction of the ion beam at the position of the forestage or poststage beam restricting shutter from the beam current density distribution. Independent claims 1, 2, 3, 6, 7 and 8 all include these limitations, and are therefore allowable.

3. Claims 4 and 5 are allowable by virtue of their dependence on allowable claim 1.

4. Claims 9 and 10 are allowable by virtue of their dependence on allowable claim
- 6.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Maskell whose telephone number is 571/270-3210. The examiner can normally be reached on Monday-Friday 8AM-5PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert Kim can be reached on 571/272-2293. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Application/Control Number:
10/574,281
Art Unit: 2881

Page 5



Michael Maskell
14 January 2008



ROBERT KIM
SUPERVISORY PATENT EXAMINER